

Spring 2016

Basic Statistics (Albany State University)

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Zephyrinus Okonkwo and Anilkumar Deverapu

Basic Statistics



Grants Collection

Affordable Learning Georgia Grants Collections are intended to provide faculty with the frameworks to quickly implement or revise the same materials as a Textbook Transformation Grants team, along with the aims and lessons learned from project teams during the implementation process.

Each collection contains the following materials:

- Linked Syllabus
 - The syllabus should provide the framework for both direct implementation of the grant team's selected and created materials and the adaptation/transformation of these materials.
- Initial Proposal
 - The initial proposal describes the grant project's aims in detail.
- Final Report
 - The final report describes the outcomes of the project and any lessons learned.



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Syllabus



DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
SPRING 2016
Course Syllabus

Course Number	MATH 2411-01 Basic Statistics (3-0)
Instructor	Anilkumar Devarapu, PhD.
Days and Time	Tue, Thurs. 11:15am-12:30pm
Classroom	202 Simmons Hall
Office:	335 Simmons Hall
Office Hours:	Mon/Wed: 10:30am-1:30pm Tue/Thurs: 1:30pm-3:30pm.
Office:	335 Simmons Hall
Telephone Number	229-430-1833
<u>Required Text:</u>	Introductory Statistics by Barbara Illowsky and Susan Dean, and others). OpenStax College, Rice University ISBN-13: 978-1-938168-20-8, Revision-ST-1-000-RS. @2013.

COURSE DESCRIPTION: This course includes an introduction to probability and basic concepts of descriptive and inferential statistics. Topics include frequency distributions, graphs, and histograms, averages, variance, standard deviation, other measurements of variation and percentiles, counting techniques, elementary probability, correlation, regression and hypothesis testing.
Prerequisite: MATH 1111-College Algebra

Goal of this course: Students will acquire the knowledge and understanding of basic statistical techniques and tools needed to solve a variety of real-life problems.

Learning Outcomes:

All students will learn to:

1. Organize, summarize, interpret data, analyze, and communicate their understanding of data results in written and verbal forms.
2. Apply various sampling techniques, perform probability experiments, and use various probability methods to solve problems encountered in applications, in science, social sciences, business, and technology.
3. Understand counting principles, binomial distribution, normal distribution, and standard normal distribution.
4. Solve problems dealing with regression and correlation and carry out hypotheses testing.
5. Use technology such as the TI-84 Plus, Excel, SPSS, and R to perform data analysis or solve a variety of statistical problems.

6. Communicate their understanding and work in oral and written forms.

Specific Objectives: At the end of the course, the student should be able to:

1. Describe with examples the use of statistics in real life.
2. Discuss and distinguish between descriptive and inferential statistics with examples.
3. Define, describe, and give examples of data, population, sample, measurement scales, variables, discrete variables, and random variables.
4. Construct a frequency tables.
5. Plot graphs of frequency distributions and cumulative frequency distributions, and draw pie chart, bar chart, time series graphs.
6. Discuss the various parameters of a population and statistics of a sample and state their relations and differences.
7. State and apply Chebyshev's Theorem, and discuss Data Analysis and Percentiles.
8. Discuss counting principles and their applications to probability
9. Discuss statistical sampling methods, events, dependent and independent events, and sample spaces.
10. Define and calculate the probabilities of events, normal, and binomial distributions.
11. Elaborate with practical examples statistical tests such as test of difference of means, test of proportions, and Hypothesis testing.
12. Solve a variety of problems Pearson Product Moment Correlation Coefficients and Spearman Rank Correlation Coefficients.
13. Discuss the Central Limit Theorem, and Confidence Interval.
14. Compute the correlation coefficients and plot regression lines.

COURSE CONTENT

1. Sampling and Data
2. Descriptive Statistics
3. Probability Topics
4. Discrete Radom Variables
5. Continuous Random Variables
6. The Normal Distribution
7. The Central Limit Theorem
8. Confidence Interval
9. Hypothesis Testing with One Sample
10. Hypothesis Testing wirth Two Sampes
11. The Chi-Square Distribution
12. Linear Regression and Correlation
13. F-Distribution and One-Way ANOVA

DESCRIPTION OF COURSE ASSESSMENTS: There will be four class tests and a final exam. All five tests will have equal weight. There will be in-class announced and unannounced quizzes. Homework problems will be assigned and students will sometimes be expected to complete them on D2L, or when completed upload them on Dropbox. Furthermore, there will be a class project involving using technology (especially R) to do data analysis. The data analysis project could constitute one of the tests. All these

assessments will be used to determine the overall student performance and hence grade. All students are expected to meet all the requirements of this course. Additional student obligations will be appended on this syllabus. Also, details concerning the dates and times for the exams will be announced in the class.

COURSE GRADING POLICY

Grades – Final Letter grades will be assigned as follows:

A = 90 - 100 B = 80 - 89 C = 70-79 D = 60 - 69 F = Below 60

CLASSROOM ATTENDANCE POLICY AND OTHER ESSENTIAL INFORMATION

Required Attendance Regulations: Class Attendance

Class attendance at Albany State University is compulsory; Students' grades are based on daily class participation and performance. Professors will not administer examinations and quizzes to students who have been absent from class for reasons other than official business of the University, sickness, or emergencies such as death in the immediate family, jury duty, court summons, etc. When students are absent for emergency reasons, the number of excused absences permitted should not exceed the number of credit hours awarded for the course except for the most extreme unavoidable emergencies (e.g., death of family members, jury duty, etc.). The instructor will officially certify all excused absences.

Attendance: As stated above, class attendance is compulsory. A student's grade may drop to a lower grade letter if he/she misses more than two classes without permission. Makeup tests will be permitted under exigencies; in that case, adequate acceptable documentation will be required of the student.

Writing is integral to teaching and learning in all disciplines. Writing in this course will be evaluated with rubrics established for the different online class activities. Writing activities in this course will be evaluated and may include in-class and out-of-class writing assignments and essay writing required on examinations. All written work must reflect good English composition.

ACADEMIC HONESTY:

See Student Code of Conduct for policy on academic integrity (policy below).

ACADEMIC DISHONESTY (UNDERGRADUATE)

The intentional misrepresentation of one's work to deceive for personal gain, when in fact said work is not that person's or assisting another to do the same. Academic Dishonest includes, but is not limited to cheating plagiarism, and fabrication.

SANCTIONS: Probation and a recommended grade of "F" in the course, University suspension for not less than one year.

Students with Disabilities:

If you are a student with a disability, you should consult with the [*Insert information about Office for Students with Disabilities*] to identify which accommodations might be needed for this course. Please contact the course instructor as soon as possible to discuss your needs. Assignments/exams prior to receiving disability approval cannot be covered by the disability decision.

***NOTE:** “ASU RAMmail account is the university’s official means of electronic communication with students. Students are required to use the ASU website (www.asurams.edu) and RAMmail for important university’s official information on financial aid, current class schedule, registration holds, account balances, etc. In order to communicate with students by other means as needed, each student is required to provide the university with his/her current telephone number(s) and mailing address via BannerWeb.”

Integration of Technology

The use of technology is integral to the course design. You should have access to a computer (e.g., computer lab, library, home, or work), a general knowledge of the operation and care of a computer, and know some basic troubleshooting techniques. You should also have some basic understanding of how to use the Internet to seek, find, and retrieve information.

Additionally, you must have a workable (functioning) ASU e-mail account, know how to send and retrieve e-mail messages with and without an attached file, know how to attach a file to an e-mail message, and how to download and open attached files. To ensure that you receive timely communications, it is your responsibility to notify the professor immediately if there are any changes to your e-mail address.

ADDITIONAL COURSE POLICY

1. All assignments must be neatly done and all papers must be headed with your name, date, course and section, at the top of the first sheet of the assignment. All assignments must be typed unless otherwise specified by the Instructor.
2. Assignments must be turned in no later than the designated hour on the due date. Exceptions may be allowed with previous permission only. Homework is due at the beginning of class upon the request of the instructor.
3. Students must participate in problem solving sessions at the board or on the computer. All students must obtain the designated textbook for the course.
4. Students must attend classes regularly and be on time. If a student is late then he or she should enter quietly without disturbing others or disrupting the class. Students are encouraged to attend class every day.
5. Students are not permitted to sit with their feet in or on desks.

6. If the instructor is late, students must remain in class orderly working (studying) until the instructor arrives or until class is officially dismissed by a person of authority (Faculty, Secretary, etc).
7. If students are absent or if they leave class early, they are still held responsible for all assignments given in class.
8. Males are not permitted to wear hats, caps or other headpieces in class. Males are requested to remove headwear before entering the classroom. Females are requested to minimize headwear. Undergarment should not be visible upon entering class or during class.
9. Beepers and cellular telephones must be turned off during class sessions. Points may be deducted from final grade for each violation of this rule.
10. Make-up examinations will be given only in cases of illness or emergencies. If a make- up examination is given, it must be taken within one class day of the original examination date unless otherwise stated by the instructor. Students are responsible for contacting the instructor for arranging make-up examinations.
11. If a student misses a pop quiz, it cannot be made-up (taken) at a later time; unless the excused absent is official.
12. Cheating or plagiarism is a serious offense. Any student caught cheating will automatically receive a grade of “0” on that exam/quiz and an F for the course.
13. Statement of Disruptive and Obstructive Behavior (see page 43 of the Albany State University 20108 – 2012 Undergraduate Catalog)
14. The final examination will be administered in accordance with the University’s schedule for final examinations. All students must take the final examination during the official final examination scheduled period.
15. If you are a student with a disability who requires special materials or accommodations, please discuss this with the professor during the first week of class (preferably, immediately after the first class period). Students with a verifiable disability will be permitted to use appropriately modified academic accommodations to address course requirements. It is the student’s responsibility to contact the Office of Disability Services and notify that office of their disability. The professor will, upon receipt of a letter from the Office of Disability Services, make appropriate academic accommodations for the students as recommended.
16. “ASU RAMmail account is the university’s official means of electronic communication with students. Students are required to use the ASU website (www.asurams.edu) and RAMmail for important university’s official information on financial aid, current class schedule, registration holds, account balances, etc. In order to communicate with students by other means as needed, each student is required to provide the university with his/her current telephone number(s) and mailing address via BannerWeb.”

*All Tests and Final Exams will have test items that will require writing skills.

THERE IS ZERO TOLERANCE FOR SEXUAL HARRASSMENT AT ALBANY STATE UNIVERSITY

TENTATIVE CLASS CALENDAR/SCHEDULE

SPRING 2016 TUESDAY/THURSDAY CLASS		
Dates	Assignments	
	Tuesday	Thursday
Week 1 January 9, 2016		Chapter 1: Sampling and Data Introduction 1.1: Definitions of Statistics, Probability, and Key term
Week 2: January 14, & January 16	1.2 Data, Sampling, and Variation 1.3. Frequency Tables and levels measurement	1.3. Frequency Tables and levels measurement 1.4: Experiments Design and Ethics
Week 3: January 21 & January 23	1.4: Experiments Design and Ethics 1.5: Data Collection Experiment 1.6: Sampling Experiment	1 Chapter 2: Descriptive Statistics 2.1: Stem-and-Leaf, Line and Bar Graphs 2.2: Histograms, Frequency Polygons
Week 4 : January 28, and January 30	2.2: Histograms, Frequency Polygons, and Time Series Graphs	2.3: Measures of the Location of the Data
Week 5: February 4, and February 6	2.5. : Measures of Center of the Data.	Test 1
Week 6: February 11, and February 13	2.6.: Skewness and the Mean, Median and Mode	2.7: Measures of the Spread of the Data
Week 7: February 18, and February 20	2.8: Descriptive Statistics	2.8: Descriptive Statistics
Week 8: : February 25, and February 27	2.4: Box Plots	3.1: Probability Terminology
Week 9: March 4, and March 6	Test II/Midterm	3.2.: Independent and Mutually Exclusive Events
Week 10: March 11, and March 13	3.3: Two basic rules of Probability	3.4.: Contingency Tables
Week 11: March 18, and March 20	3.5.: Tree and Venn Diagrams 3.6. Probability Topics	Chapter 4. Discrete Random Variables 4.1:Probability Distribution Function
Week 12: March 24, 2013- March 28, 2013	SPRING BREAK	
Week 13: April 1, and April 3	4.2Mean or Expected Value and Standard Deviation 4.3: The Binomial Distribution	4.3: The Geometric Distribution 4.5: Poisson Distribution
Week 14: April 8, and April 10	Chapter 6: The Normal Distribution 6.1: The Standard Normal Distributions 6.2: Applications of the Normal Distribution	Chapter 7. The Central Limit Theorem 7.1: The Central Limit Theorem for Sample Means and Sums 7.2.: Central Limit Theorem Applications
Week 15: April 15, and April 17	7.4: The Normal Approximation to Binomial Distribution	Test IV
Week 16: April 22, and April 24	Chapter 8: Confidence Intervals 8.1: Confidence Interval for the Mean when sigma is known	8.2: Confidence Interval for the Mean when sigma is unknown
Week 17: April 29	8.3: Confidence Intervals and Sample Size for Proportions	Classes End
May 2-7	Final Examinations for end of term for all students	

Initial Proposal

Application Details

Manage Application: ALG Textbook Transformation Grant

Award Cycle: Round 4

Internal Submission Deadline: Monday, September 7, 2015

Application Title: 159

Submitter First Name: Zephyrinus

Submitter Last Name: Okonkwo

Submitter Title: Professor

Submitter Email Address: Zephyrinus.Okonkwo@asurams.edu

Submitter Phone Number: 229-430-1833

Submitter Campus Role: Proposal Investigator (Primary or additional)

Applicant First Name: Zephyrinus

Applicant Last Name: Okonkwo

Co-Applicant Name(s): Anilkumar Devarapu

Applicant Email Address: Zephyrinus.Okonkwo@asurams.edu

Applicant Phone Number: 229-430-1833

Primary Appointment Title: Professor of Mathematics

Institution Name(s): Albany State University

Team Members (Name, Title, Department, Institutions if different, and email address for each):

- 1.Zephyrinus C. Okonkwo, Ph.D., Professor of Mathematics Department of Mathematics and Computer Science zephyrinus.okonkwo@asurams.edu
- 2.Anilkumar Devarapu, Ph.D., Assistant Professor of Mathematics , Department of Mathematics and Computer Science anilkumar.devarapu@asurams.edu

Sponsor, (Name, Title, Department, Institution):

Syed Roosta, Ph.D.,

Professor and Chair of the Department of Mathematics and Computer Science

Albany State University

Proposal Title: 159

Course Names, Course Numbers and Semesters Offered:

Basic Statistics,

MATH 2411,

Fall, Spring, and Summer

Final Semester of Instruction: Spring 2016

Average Number of Students per Course Section: 35

Number of Course Sections Affected by Implementation in Academic Year: 8

Total Number of Students Affected by Implementation in Academic Year: 260

List the original course materials for students (including title, whether optional or required, & cost for each item): Title: Elementary Statistics: A Step-by-Step Approach with Formula Card 9th Edition, Author: Bluman, McGraw Hill Publishers, Required.
Buy New : \$254.93; Buy Used: \$191.27
Rent New : \$188.65; Rent Used: \$137.67
TI-84 Plus Graphing Calculator: \$125.00

Proposal Categories: No-Cost-to-Students Learning Materials

Requested Amount of Funding: \$10,800

Original per Student Cost: \$262.67 - \$379.93

Post-Proposal Projected \$ 0.00

Student Cost:

Projected Per Student \$262.67 - \$379.93

Savings:

Plan for Hosting Materials: D2L

Project Goals:

- To eliminate financial cost of textbook and other course related materials to students by providing no-cost course materials, software, and online free textbook
- Enhance student engagement in the learning of MATH 2411-Basic Statistics, and improve student success in the course.
- Stimulate student interest in the use technology in the solution of real life problems encountered in statistics.
- Increase enrollment of students in the course through the provision of no-cost textbook and course materials.

Statement of Transformation:

For more than fifteen years, most of our students have been finding it difficult to purchase class textbooks due to rising cost of textbooks and learning materials. Our MATH 2411-Basic Statistics text is very expensive and most students are unable to buy and use it. This has reduced student success rate in the classes as well students' ability to have deep content knowledge of the concepts learned in the course and their applications in real life. Textbook cost has reduced the number of students taking the course. Developing this no-cost instructional and assessment materials with free online textbook, will increase student understanding and interest in the course.

We will develop 50 to 70 pages of reading material which will encompass all adequate content learning materials, including study guide, and assessment materials needed for the course. This way every student taking the course will be able to read the whole material and do the appropriate course assessments. The course materials we will develop will be connected with the free textbook.

MATH 2411 requires the coverage of certain topics and concepts while still allowing instructors the flexibility to adapt certain materials to meet the outcomes of certain disciplines and cohorts of students. During our preparation of this course material, we shall consult colleagues within our department and other faculty members teaching statistics courses in other units and departments, seek their inputs and recommendations, and adopt their recommendations. This way these other instructors could adopt this textbook for teaching their students, thereby reducing the costs as well.

We plan to adopt the best practices in pedagogy and learning. Dr. Devarapu and Dr. Okonkwo will adequately explore and develop seamless learning materials, including statistical simulation, which will attract student interests. All faculty members who will use the course material will have the freedom to use pedagogical methods that most fit their teaching styles as well as the learning styles of their students. Students will have seamless access to the

course materials and free online textbook, including having access on their mobile devices any time, any day.

Transformation Action Plan:

This project will require some changes in syllabus. However, there will be no change in goal of the course, course learning outcomes, and specific objectives of the course. There will be pedagogical changes which will be adopted across the course. MATH 2411- Basic Statistics is presently taught in class only. It has minimum online content. The course materials which will be developed through this project as well as all assessment materials will be placed in D2L. Furthermore, some assessments, including some tests will be placed in D2L as deemed necessary and convenient by individual instructors. We will integrate the Open-Source RStudio server in the course and students will be able to do their homework and exams using it. This gives instructors the flexibility to choose how best to teach their course. The finished products will be in Word, Latex, and pdf.

Dr. Zephyrinus Okonkwo and Dr. Devarapu will discuss the outline of the development of this course material with faculty within the department as well as faculty members teaching Statistics for Business, and Statistics for Social Sciences. These instructors will be invited to suggest possible statistical projects appropriate in their disciplines. Such projects will be developed and incorporated as part of the textbook.

Dr. Robert Owor will serve as the external reviewer. Although he holds a PhD in Computer Science and Software Engineering, he has very deep understanding of Statistics and its applications. He has taught MATH 2411 in the past. He will examine the appropriateness and relevance of the content, pedagogy, and adequate alignment of the content of the textbook with the course learning outcomes.

Quantitative & Qualitative Measures: We will examine the effectiveness of no-cost textbook and learning materials on student learning using quantitative and qualitative methods. Using the R software, we shall perform statistical data analysis of the student performance in the course using the no-cost textbook verses the performance of those using the formal textbook. Since all students in the non-cost textbook classes will have free online textbooks and other course materials available to them, we predict that in-depth learning will take place and students in the no-cost textbook will outperform those who use the formal textbook. Three qualitative measures will be used. First, there will be discussion sessions with students using the no-cost textbook and their input adequately recorded and analyzed. A Likert-type will also be administered to the students, and results analyzed. Furthermore, instructors teaching the course using the no-cost textbooks will interviewed, and their experiences and input recorded. Those faculty members will be invited to present additional input in writing. These results and feedback will subsequently be used for project improvement.

Timeline:

10/12/15: Attend required ALG training

10/31/15 : Search open source textbook and course materials

11/30/15: Prepare syllabus redesign

12/15/15: Set up online R studio server

1/12/16: Classes begin and the team introduces open source course material and syllabus

2/18/16: Quantitative data collection-Test one comparison: Formal Textbook vs. no-cost material

3/10/16: Quantitative data collection-Test two comparison: Formal Textbook vs. no-cost material

3/4/16: Qualitative data collection-Discussion forum comparison and participant survey

3/11/16: Midterm grades due

3/15/16: Submission of mid-semester report

4/8/16: Quantitative data collection-Test three comparison: Formal Textbook vs. no-cost material

4/28/16: Quantitative data collection-Test four comparison: Formal Textbook vs. no-cost material

5/4/16: Qualitative data collection-Discussion forum comparison and participant survey

5/13/16: Final grades due

5/31/16: Submission of final report

Budget:

Dr. Okonkwo--\$5000 for the selection and preparation of the no-cost course materials, redesign of syllabus, and collection and analysis of associated data.

Dr. Devarapu--\$5000 for the selection and preparation of the no-cost course materials, collection and analysis of associated data, and the setting up of the Open-Source RStudio Server.

\$800- for overall project expenses, including travel to attend a required ALG grant kickoff meeting.

Sustainability Plan:

MATH 2411 is offered every semester at Albany State University. The course material will be offered to faculty members in the format they choose. The textbook and all support material will be placed on a link <http://anil.asurams.edu> for our faculty members. Students will have the opportunity to download the pdf version on D2L. Furthermore, our instructors can download the whole instructional materials and textbook from D2L as well as from <http://anil.asurams.edu>.

From: Dr. Seyed Roosta, Professor of Computer Science
Chair, Department of Mathematics and Computer Science
Re: Grant Application for Statistics Learning Materials
Date: September 3, 2015

I am very glad to write this letter in support of two faculty members, Dr. Zephyrinus Okonkwo and DR. Anilkumar Devarapu, who have applied for an Affordable Learning Georgia grant to develop a no-cost textbook for students taking statistics courses at Albany State University. For many years, the cost of textbooks have continued to rise, and today the cost of a mathematics, statistics, or computer science textbook is more than fifty percent above what it was six years ago. Yet textbook cost continues to rise. Since coming on board at Albany State University, I have negotiated textbook cost reduction with several publishers, yet the costs continue to rise unhindered. By developing no-cost textbook for our students, Dr. Okonkwo and Dr. Devarapu will be making available to our students a much needed help, and more students will be able to enroll in MATH-2411-Basic Statistics.

Drs. Okonkwo and Devarapu will consult with other faculty members who teach statistics related courses within and outside of the Department of Mathematics and Computer Science.

The Department of Mathematics and Computer Science will support this no-cost textbook development, and we will also help disseminate the textbook. It is our goal to share this textbook with faculty members in the College of Business as well as faculty members in the College of Arts and Humanities who are teaching statistics and application courses. Essentially, students at Albany State University could save up to nine-hundred thousand dollars a year.

I am very glad that Dr. Okonkwo and Dr. Devarapu are developing this no-cost textbook for statistics, and I strongly support their application and subsequent award of an Affordable Learning Georgia grant. The department will provide necessary resources to facilitate their activities. We will monitor the implementation process and if successful will recommend use of the same materials and teaching strategy in all sections of Basis Statistics.

Sincerely Yours,



Seyed Roosta, Ph.D.

Re: Grant Application for Statistics Learning Materials

Date: September 3, 2015

Dear Sir/Madam

I am most pleased to write this letter in support of two of my colleagues, Zephyrinus Okonkwo and Anilkumar Devarapu, who have applied for an Affordable Learning Georgia grant to develop a no-cost textbook for students taking statistics courses at Albany State University. As you are aware, the cost of textbooks have continued to rise, and mathematics and statistics textbooks seem to be the most expensive textbooks used by our students. A student taking five mathematics and statistics courses a semester could spend \$1500 on textbooks alone. Essentially, the cost of textbooks have continued to hinder student enrollment in certain courses including statistics.

By developing this no-cost textbook for our students, Drs. Okonkwo and Devarapu will be doing an enviable job for our students and university. The books will save a lot of money for our students, and many students can then afford to enroll in MATH 2411-Basic Statistics.

Drs. Okonkwo and Devarapu's no-cost textbook development plan is also more encompassing. They will receive input from other statistics instructors including those of us who teach statistics and its applications outside the Department of Mathematics and Computer Science. I plan to give them my input as well.

This no-cost textbook will also save the College of Business students a lot of money. As the main Statistics for Business instructor, my colleagues and I will adopt this textbook as well, thereby increasing the number of students using the textbook by 220 every year.

I am very excited that Drs. Okonkwo and Devarapu are developing this no-cost textbook for statistics, and I strongly support their application for an Affordable Learning Georgia grant.

I can be reached for further information at 229-430-4723.



Amaechi N. Nwaokoro, Ph.D.

Professor of Economics.



Sign in to RStudio

Username:

Password:

☐ Stay signed in

Sign In



File Edit Code View Plots Session Build Debug Tools Help

Go to file/function

statewide.csv x

ABC

```
1 State,VR,MR,M,W,H,P,S
2 AK,761,9,41.8,75.2,86.6,9.1,14.3
3 AL,780,11.6,67.4,73.5,66.9,17.4,11.5
4 AR,593,10.2,44.7,82.9,66.3,20,10.7
5 AZ,715,8.6,84.7,88.6,78.7,15.4,12.1
6 CA,1078,13.1,96.7,79.3,76.2,18.2,12.5
7 CO,567,5.8,81.8,92.5,84.4,9.9,12.1
8 CT,456,6.3,95.7,89,79.2,8.5,10.1
9 DE,686,5,82.7,79.4,77.5,10.2,11.4
10 FL,1206,8.9,93,83.5,74.4,17.8,10.6
11 GA,723,11.4,67.7,70.8,70.9,13.5,13
12 HI,261,3.8,74.7,40.9,80.1,8,9.1
13 IA,326,2.3,43.8,96.6,80.1,10.3,9
14 ID,282,2.9,30,96.7,79.7,13.1,9.5
15 IL,960,11.4,84,81,76.2,13.6,11.5
16 IN,489,7.5,71.6,90.6,75.6,12.2,10.8
17 KS,496,6.4,54.6,90.9,81.3,13.1,9.9
18 KY,463,6.6,48.5,91.8,64.6,20.4,10.6
19 LA,1062,20.3,75,66.7,68.3,26.4,14.9
20 MA,805.3,9.96,2.91,1.80,10.7,10.9
```

1:1

Text File

Console ~/

```
> mean(Arnelle$M)
[1] 67.3902
> median(Arnelle$M)
[1] 69.8
> fivenum(Arnelle$M)
[1] 24.00 49.55 69.80 83.95 100.00
> var(Arnelle$M)
[1] 482.1157
> sd(Arnelle$M)
[1] 21.95713
> range(Arnelle$M)
[1] 24 100
> boxplot(Arnelle$M, horizontal = T, col = "pink")
> boxplot(Arnelle$M, horizontal = T)
> hist(Arnelle$M, col = "blue")
> |
```

Final Report

Affordable Learning Georgia Textbook Transformation Grants

Final Report

Date: August 9, 2016

Grant Number: 159

Institution Name(s): Albany State University

Team Members (Name, Title, Department, Institutions if different, and email address for each):

Name	Email	Department
Dr. Zephyrinus Okonkwo	Zephyrinus.Okonkwo@asurams.edu	Mathematics and Computer Science
Dr. Anilkumar Devarapu	Anilkumar.Devarapu@asurams.edu	Mathematics and Computer Science

Project Lead:

Course Name(s) and Course Numbers:

Semester Project Began: Dr. Zephyrinus C. Okonkwo

Semester(s) of Implementation: Spring 2016

Average Number of Students Per Course Section: 35

Number of Course Sections Affected by Implementation: 1

Total Number of Students Affected by Implementation: 35

1. Narrative

A. Describe the key outcomes, whether positive, negative, or interesting, of your project. Include:

- Summary of your transformation experience, including challenges and accomplishments

The overall transformation experience of this project was excellent. During fall 2015, one section of MATH 2411-Basic Statistics was offered using the traditional textbook. During the first semester of implementation (spring 2016), one section of the course was taught using the ***Free Statistics-OpenStax College Textbook: Introductory Statistics***. In addition, other instructional, learning, and assessment materials developed with the support of this grant were used for the enhancement of the course. To determine the impact of the grant, there was the need for comparison of student achievement in the traditional textbook course (the control group), and the free textbook course (the treatment group).

A total of 35 students enrolled in the no-cost textbook section in spring 2016 whereas a total of 31 students enrolled in the section requiring textbook in fall 2015. Of the 35 students who took the no-cost textbook section, none withdrew from the course, giving us a base of 35. Out of the 35 students, 32 students passed with C or better, making the passing rate of the no-cost textbook course 91.43%; 3 students failed the course, making the failing rate of the no-cost textbook section 8.57%. Out of the 31 students who took the course in fall 2015 using the traditional hardcopy textbook, 28 passed with “C” or better, making the passing rate 90.32%. Three students failed (by earning D or F), making the failing rate of the textbook required section 9.68%.

It is essential to mention that there could be some confounding variables involved, however, that would not discount our conclusion from the data which clearly states that the control group did not outperform the treatment group since 91.43%>90.32%.

The total savings by students enrolled in the no-cost textbook section (the treatment group) spring 2016 was \$8,922.55 (at the cost \$254.93 each).

The following goals are the primary focus of this project:

- (a) Lower the cost of college and improve overall student retention and student success through the use of high quality low cost or no-cost learning materials.
- (b) Reduce the burden of cost of textbooks on the students, in this case, offer free ***OpenStax College Textbook***.
- (c) Give all students access to course materials, including a free ebook they could download on their computers as well as have access to on D2L anytime any day, and before the first day of class.
- (d) Allow student access to free Open Education Resources (OER) and Galileo.
- (e) Provide students the ability to use technology such as Excel and R to solve real-life challenging problems.

In the subsequent sections, we shall describe why this transformation experience was very successful and how this course has been redesigned and enhanced to achieve the predetermined goals and objectives.

- **Transformation Experience**

Guided by the immense advantages of Affordable Georgia Learning textbook Grant, Dr. Anilkumar Devarapu and Dr. Zephyrinus Okonkwo submitted grant application and were awarded the grant during fall 2015. Dr. Devarapu taught one MATH 2411-Basic Statistics section in fall 2015 and one section of the course in spring 2016. Dr. Chinenye Ofodile used the materials developed through this grant to teach MATH 2411-Basic Statistics during summer 2016. But for the sake of this report and for statistical purposes, we shall ignore course outcomes of Dr. Ofodile’s class since we were unable to collect essential data from the course. It was not part of this study. Albany State University Office of Academic Affairs and Instruction, requires all instructors to place instructional and learning materials on the D2L platform. And for all online courses, all materials, including course assessment materials, must be placed on D2L: this helps to

reinforce course delivery quality. Hence all faculty members teaching courses developed D2L websites where they placed a variety of learning materials. Our faculty members who are teaching MATH 2411-Basic Statistics have made and are making the free OpenStax College Text eBook available to all students on D2L. Students could download it on their own computers or mobile devices. In addition, from fall 2016, PowerPoint Lecture Notes associated with the textbook are available for students.

A total of 35 students enrolled in the no-cost textbook section in spring 2016 whereas a total of 31 students enrolled in the section requiring textbook in fall 2015. Of the 35 students who took the no-cost textbook section, none withdrew from the course, giving us a base of 35. Out of the 35 students, 32 students passed with C or better, making the passing rate of the total no-cost textbook course 91.43%; 3 students failed the course, making the failing rate of the no-cost textbook section 8.57%. Out of the 31 students who took the course in fall 2015 using the traditional hardcopy textbook, 28 passed with “C” or better, making the passing rate 90.32%. Three students failed (by earning D or F), making the failing rate of the textbook required section 9.68%.

It is essential to mention that there could be some confounding variables involved, however, that would not discount our conclusion that the data states that the control group did not outperform the treatment group since $91.43\% > 90.32\%$.

The total savings by students enrolled in the no-cost textbook sections (the treatment group) spring 2016 was \$8,922.55 (at the cost \$254.93 each).

In order to examine participant interest, a ten-question Likert-Type Survey with measurement scales (with five columns, Strongly Agree=4, Agree=3, No Opinion=3, Disagree=2, and Strongly Disagree=1) was administered to the students. The survey was designed in order to capture a significant amount of information which could be analyzed, and subsequently used to improve subsequent project implementation. The ten questions were placed in the survey and about 30 students completed most of the questions, 31 completed question 1, and 18 and 19 students completed questions 2 and 3 respectively. The survey result indicates that students were very satisfied with the course, and 100% (30 out of 30) of survey participants Strongly Agreed or Agreed that they will recommend this course to other students since it offers free online textbook and other learning materials.

Here is the Transformation Action Plan.

No.	Transformation Action Plan
1	Identification: The faculty team reviews Affordable Learning Georgia ebooks provided during grant orientation), AGL website, and other Open Education Resources (OER) sites, identify the best adoptable textbook and other learning materials related to the course.
2	Adoption: Select the topics in the adopted text and align them with the course syllabi, goals, learning outcomes, and specific objectives of the course.

3	Adaptation: Select class assignments and assessments for students to complete using Open Education Resources (OER) sites, the text, as well as instructor-constructed materials.
4	Syllabus: The syllabus is redesigned to align with the no-cost resources for course lectures. Also, the Instructional Schedule with assessment due dates, quizzes and exams are appended in the syllabus. Syllabus would describe how the lectures would be presented using OER. Students would be required to have one printed copy of syllabus. The syllabus is uploaded on D2L as well.
5	Course Redesign: Students would complete assignments using Open Education Resources (OER) site and the D2L site. Students would be required to print minimal hard copies of selected course information from Open Education Resources (OER) sites for which quizzes and exams would be based. Students will also upload their assignments, including any given writing assignments on Dropbox.
6	Instructor Design: D2L would be the primary online Learning Management System for downloading content from selected Open Education Resources (OER) and other instructor developed resources.

We were guided by the grant proposal we submitted as well as additional discussions and substantial work by the team, and suggestions by our colleagues both within and outside our department. Consequently, learning materials such as the eBook, PowerPoint lecture notes, instructor-prepared lecture notes, course syllabus, and *Reading Materials and Assessment Guide* which contains a variety of solved problems, were placed on D2L. Faculty team members met several times for planning sessions and production of course materials. Minimum requirements for this grant activity were delineated and every faculty member teaching the course was expected to determine the changes faced by the students and find ways to overcome such challenges. D2L provided an excellent platform for communications. Students were able to reach the instructor on D2L, emails, and sometimes would call or go to the instructor's office for one-on-one help. The course outcomes were excellent. Student achievement was excellent. The retention was 100%. The course was very successful, as evidenced by analysis of participant survey.

- **Challenges**

Some challenges were evident. First, most students in the class have not taken classes where hardcopy textbooks were not required. Moreover, students believed that it was impossible to take a no-cost textbook course without having the downside of low level learning or low student achievement. Hence the instructor had to convince the students that indeed the OpenStax ebook and associated materials were adequate for the course, and also met the minimum benchmark in terms of course material quality. A couple of students had bought the former textbook required for the course and therefore wanted to use their own textbook instead of adopting the free ebook. This is always a conflicting scenario: in the past, not more than 70% of the students had bought textbooks for the course. Luckily, most students have access to computers, WiFi, and this access

helped to comfort and convince most students that the materials and instructional delivery platform were adequate.

- **Accomplishments (Outcomes)**

The five goals of the project listed above were accomplished. Successful transformation experience gives an excellent pathway for future use of OER materials for the course. Our goal is to utilize this opportunity to propagate the immense advantages of having a well-developed no-cost textbook course, the appended course materials, and other associated learning materials. Furthermore, we are sharing this course and the project outcomes with deans, chairs, and other faculty members teaching *Statistics and its Iterations* in other departments. Some deans have already invited their faculty members to consider using the course materials or “Copy Course” from D2L.

Goal 1. Lower the cost of college and improve overall student retention and student success through the use of high quality low cost or no-cost learning materials.

Students who enrolled in this course did not have to purchase a textbook since the course comes with a free OpenStax textbook. Students in this course section saved at total of \$8,922.55 (at a savings of \$254.93 each). Moreover, additional learning materials have been developed through the support of this grant. These additional course materials enabled students to enhance their problems-solving and critical thinking skills. Students taking this course fall 2016 and beyond will also have access to free PowerPoint notes on every chapter of the textbook. The passing rate of the course was 91.43%, which is a little higher than the pass rate of students who took the course using a formal textbook.

*Goal 2. Reduce the burden of cost of textbooks on the students, in this case, offer free **OpenStax College Textbook**.*

Every student spends on the average approximately \$1000 per semester on books and other learning materials. Hence the provision of OpenStax textbooks enable students to save a lot of money: money which could be directed to some other expenditure. All students who completed the administered participant survey stated that they would recommend this course section to other students. Student satisfaction will have broader impact on students who will take this course in the future as well as those who will be convinced to enroll in courses involving no-cost textbooks or eBooks.

Goal 3. Give all students access to course materials, including a free ebook they could download on their computers as well as have access to on D2L anytime any day, and before the first day of class.

Every Albany State University student has access to D2L learning delivery platform. The ease of navigation of this platform and its features enables faculty and students to have a seamless opportunity to have learning materials, assessment instruments, syllabus, and other items required by the course placed on a single site. The OpenStax textbook, PowerPoint lecture notes, and other

course support materials were available before the first day of class. The availability and accessibility of the materials for students on the first day of class was very essential as it helped to build assurances between the instructor and the students.

Goal 4. Allow student access to free Open Education Resources (OER) and Galileo.

The fourth goal was met. Students seeking additional learning support materials have learnt how to utilize OER materials by going to the website. Their ability to have access to additional learning materials increases the chance of student success.

Goal 5. Provide students the ability to use technology such as Excel and R to solve real-life challenging problems.

Most problems encountered in real life are more challenging than the ones usually used in class for illustration of concepts and classroom problem-solving. One of the features of this course is the integration of technology such as Excel and R. This platform enables students to perform data analysis on large data sets. Students are able to do projects involving a sequence of steps. Consequently, higher order learning and critical thinking abilities are enhanced considerably. The wider impact of this is the fact that these students could confidently seek jobs and careers involving use of technology to analyze data.

- **Transformative impacts on your instruction**

There are several positive transformation impacts on instruction and learning. This project avails instructors the opportunity to reexamine their pedagogical and assessment practices. Many faculty members now see this project as an opportunity to transform their facilitation of learning through the use of free OpenStax textbook, additional instructional and assessment materials, as well as adopt and use additional technology capacity to enhance student learning. Students could now finish the Basic Statistics course knowing how to use Excel and R to analyze data and present various forms of data graphically. Dr. Devarapu has continued to develop and enrich this course, and he is enhancing student achievement by availing them an opportunity to utilize various platforms to submit their homework, quizzes, and tests. Students who miss quizzes with excused absence can be given an opportunity to make them up online.

Another positive impact is the following: unlike the traditional class textbook requirement where the title of the book and author are announced in the syllabus first day of class, students could visit D2L site of the course and would begin to study essential materials. With the OpenStax textbook aligning with the course syllabus and course learning outcomes, students could read up materials before the first day of class. Many students have expressed the fact that they were able to download the textbook on their computers and smartphones before the first day of class. And discussion of concepts can even trend on D2L.

- **Transformative impacts on your students and their performance**

Students expressed satisfaction that they were enrolled in a no-cost free textbook course with access to an eBook. Of the 18 students who responded to the statement, “**I have access to an online textbook**”, 16 or 88.89% strongly agree or agree, and 2 or 11.11% disagree. The weighted mean response score to this statement was 4.16667. This implies that most students agree that they have access to free online textbooks.

Of the 19 participants (treatment group) who responded to the statement, “**I have access to free instructional materials**”, 15 or 78.95% strongly agree or agree that they have access to free online instructional materials, 1 or 5.26% disagrees or strongly disagree, and 3 or 15.79% have no opinion. The weighted mean response score to this statement is 4.052632. This implies that most students agree with the statement.

Of the 30 participants (treatment group) who responded to the statement, “**The no-cost textbook has enhanced my performance in the course**”, 28 or 93.33% strongly agree or agree with the statement while 2 or 6.67% have no opinion. The weighted mean response score to this statement is 4.50.

Of the 30 participants (treatment group) who responded to the statement, “**I would like to take another no-cost course**” 30 or 100% strongly agree or agree with the statement while none disagrees with the statement. The weighted mean response score to this statement is 5.0.

Of the 30 participants (treatment group) who responded to the statement, “**I will recommend to other students since it offers free online textbook and other learning materials**”, 30 or 100% strongly agree or agree with the statement while none disagrees with the statement. The weighted mean response score to this statement is 5.0.

Students’ responses to these questions are very essential since satisfied participants would be the most forceful messengers who would propagate the positive outcomes and their positive experiences and satisfaction with the course.

The instructor noted that due to the free textbook available to all students enrolled in the treatment group, every student was given equal opportunity to have access, thereby eliminating the period students would have to wait to receive their financial aid to purchase books.

A third positive impact is the following: out of 35 students who enrolled in treatment group, no student withdrew from the course. The course completion/ retention rate was 100%, and the passing rate was 91.43%. Please see the appended document from D2L.

B. Describe lessons learned, including any things you would do differently next time.

Several lessons were learned by the team members. First, the management of the project rested on the project team members, Dr. Okonkwo and Dr. Devarapu. They followed the timeline as delineated in the project. The team documented project activities. The team designed the data collection instrument including the participant survey. The survey was

administered on D2L thereby realizing higher percentage of participants completing the survey. More detailed data result is delineated in the appendix. Also, learning more about grant management on campus was essential.

2. Quotes

Provide three quotes from students evaluating their experience with the no-cost learning materials.

- *I would like to have ASU to offer more courses like free cost text books.*
- *This course gave me an easy free access to all the course materials instead of having wait for the financial aid refunds to buy the textbook, by that time I will so far behind the class.*
- *Thank you Dr. D. for providing me the free ebook.*

3. Quantitative and Qualitative Measures

3a. Overall Measurements

Student Opinion of Materials

Was the overall student opinion about the materials used in the course positive, neutral, or negative?

Total number of students affected in this project: 35

- Positive: 100 % of 35 number of respondents
- Neutral: _____ % of _____ number of respondents
- Negative: _____ % of _____ number of respondents

Student Learning Outcomes and Grades

Was the overall comparative impact on student performance in terms of learning outcomes and grades in the semester(s) of implementation over previous semesters positive, neutral, or negative?

Student outcomes should be described in detail in Section 3b.

Choose One:

- ☒ **Positive:** Higher performance outcomes measured over previous semester(s)
- ☐ **Neutral:** Same performance outcomes over previous semester(s)
- ☐ **Negative:** Lower performance outcomes over previous semester(s)

Student Drop/Fail/Withdraw (DFW) Rates

Was the overall comparative impact on Drop/Fail/Withdraw (DFW) rates in the semester(s) of implementation over previous semesters positive, neutral, or negative?

Drop/Fail/Withdraw Rate:

8.57% of students, or 3 out of a total 35 students affected, dropped/failed/withdrew from the course in the final semester of implementation.

Choose One:

- ☒ **Positive:** This is a lower percentage of students with D/F/W than previous semester(s)
- ☐ **Neutral:** This is the same percentage of students with D/F/W than previous semester(s)
- ☐ **Negative:** This is a higher percentage of students with D/F/W than previous semester(s)

3b. Narrative

- *In this section, summarize the supporting impact data that you are submitting, including all quantitative and qualitative measures of impact on student success and experience. Include all measures as described in your proposal, along with any measures developed after the proposal submission.*
- *Include measures such as:*
 - *Drop, fail, withdraw (DFW) delta rates*

The DFW rate was 8.57%.

- *Course retention and completion rates*

The course retention rate was 100%.

- Average GPA

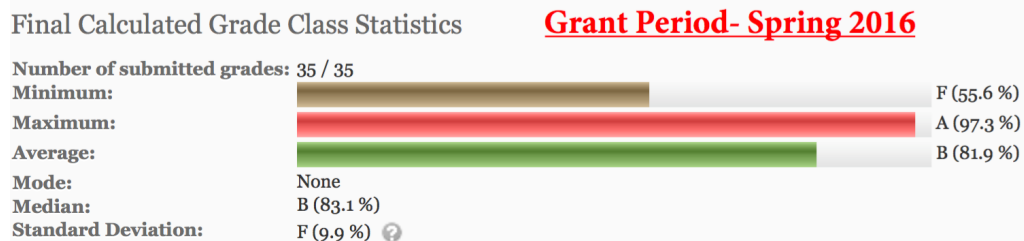
The average GPA = $[(9 \times 4 + 16 \times 3 + 7 \times 2 + 3 \times 0) / 35] = 2.80$

- Pre-and post-transformation DFW comparison





Pre--transformation GPA = $[(5 \times 4 + 13 \times 3 + 10 \times 2 + 2 \times 1 + 1 \times 0) / 31] = 2.61$.

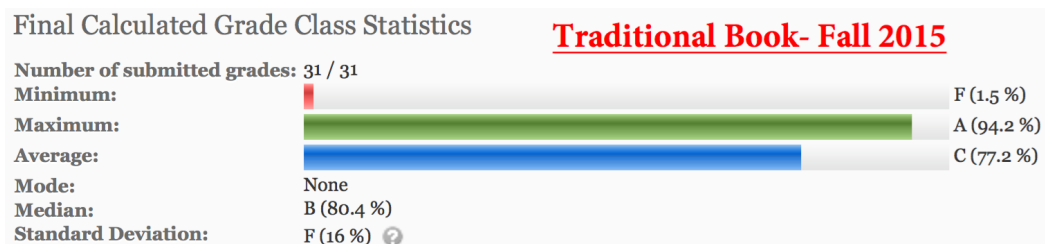
Pre—transformation DFW=9.68%.

Post-transformation DFW= 8.57%.

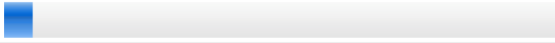
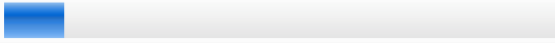





Grade Frequency

Start %	Symbol	Frequency		
0	F	3	8.6 %	
60	D	0	0 %	
70	C	7	20 %	
80	B	16	45.7 %	
89.2	A	9	25.7 %	



Grade Frequency

Start %	Symbol	Frequency		
0	F	1	3.2 %	
60	D	2	6.5 %	
70	C	10	32.3 %	
80	B	13	41.9 %	
90	A	5	16.1 %	

- *Student success in learning objectives*

All the course learning outcomes were met. The assessment instruments, including homework, test class work and technology-based exercises were aligned with the specific objectives. The overall student achievement was very good. Students showed immense satisfaction with the course.

- *Surveys, interviews, and other qualitative measures*
- *Indicate any co-factors that might have influenced the outcomes for better or worse.*

There were certain issues beyond our control which could have contributed to improvement in enrollment in the no-cost text book sections. For example, many departments are teaching statistics-like courses to their students. This has reduced the number of students taking Statistics from the Department of Mathematics and Computer Science. We are attaching a letter we have written to Deans lately, encouraging them to get their faculty members to adopt our Statistics course.

- *When submitting your final report, as noted above, you will also need to provide the separate file of supporting data on the impact of your Textbook Transformation (surveys, analyzed data collected, etc.)*

Survey Questionnaire 9: Of the 30 participants (treatment group) who responded to the statement, “I will recommend to other students since it offers free online textbook and other learning materials”, 30 or 100% strongly agree or agree with the statement while none disagrees with the statement. The weighted mean response score to this statement is 5.0.

Please see appendix A

4. Sustainability Plan

- *Describe how your project team or department will offer the materials in the course(s) in the future, including the maintenance and updating of course materials.*

The Department of Mathematics and Computer Science is planning to institutionalize the no-cost MATH 2411 Basic Statistics course. The success of this course will enable other departments to adopt this course. Some of our colleagues who are teaching this course have expressed interest in adopting this course. In order to have wider dissemination, presentations of the results will be made available at regional and national scholarly meetings. Available materials developed through this grant will be available in D2L and other instructors will be given permission to “copy” course when such requests are made. Furthermore, we plan to continue to develop new course materials to enrich this course.

Most of the course materials associated with this project are placed on D2L. All the course materials can be downloaded from Dr. Devarapu’s website, <http://anil.asurams.edu/MATH2411>.

The project team will continue to update this website periodically.

1. Future Plans

Describe any impacts or influences this project has had on your thinking about or selection of learning materials in this and other courses that you will teach in the future.

This project has availed us an opportunity to have access to the free OpenStax Statistics text, **Introductory Statistics** and its associated course materials. We have also been able to develop this course on D2L, making it possible for us to be able offer it face-to-face in-class, online, or a hybrid course. In addition, we have developed additional learning material, including a significant number of solved problems which students and other instructors will find very useful. We will continue to develop and enrich the course by developing additional learning materials.

Describe any planned or actual papers, presentations, publications, or other professional activities that you expect to produce that reflect your work on this project.

We plan to write and present a scholarly papers on the results of this project. The papers will be presented in local and national meetings. Some of the papers will be published as well. We plan to develop and institutionalize another high demand course using OpenStax resources as well.

- *Describe any impacts or influences this project has had on your thinking about or selection of learning materials in this and other courses that you will teach in the future.*

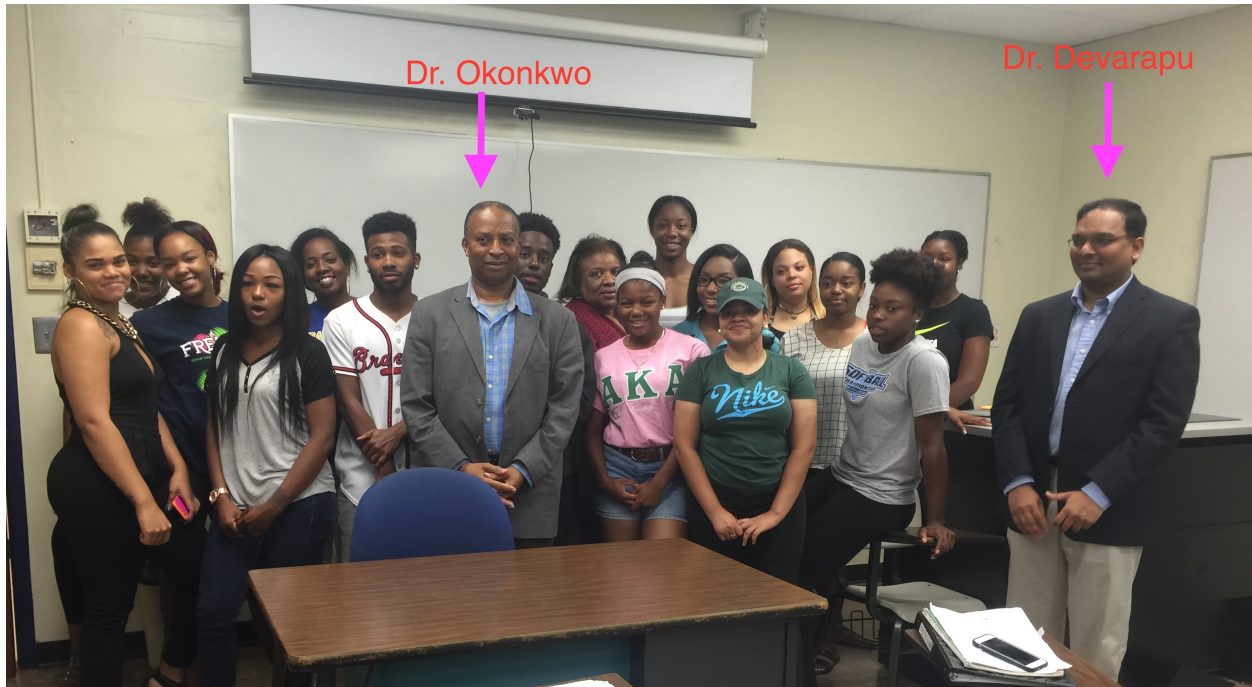
Some of our colleagues teaching statistics in other departments have agreed to examine this course materials with the hope of adopting the course.

- *Describe any planned or actual papers, presentations, publications, or other professional activities that you expect to produce that reflect your work on this project.*

We plan to present the result of this project at the Joint Mathematics Meetings in January 2017 in Atlanta, Georgia.

6. Description of Photograph

- *List the names of the people in the separately uploaded photograph and their roles.*



Appendix A

[My Home](#) > [Basic Statistics Section ...](#)

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Results

☐ Has Start Date

8/3/2016

Now

☐ Has End Date

8/10/2016

Now

Search

Completion Summary

30 attempts have been completed

Question 1

This section of the course does not cost me money

Strongly Agree



17 (56.67 %)

Agree



9 (30 %)

No Opinion



0 (0 %)

Disagree



4 (13.33 %)

Strongly Disagree



0 (0 %)

Question 2

I have access to an online textbook

Strongly Agree



9 (47.37 %)

Agree



7 (36.84 %)

No Opinion



0 (0 %)

Disagree



2 (10.53 %)

Strongly Disagree



1 (5.26 %)

Question 3

I have access to other free instructional material

Strongly Agree



7 (36.84 %)

Agree



8 (42.11 %)

No Opinion



3 (15.79 %)

Disagree



0 (0 %)

Strongly Disagree



1 (5.26 %)

Question 4

The no-cost textbook has enhanced my performance in this course

Strongly Agree



17 (56.67 %)

Agree



11 (36.67 %)

No Opinion



2 (6.67 %)

Disagree



0 (0 %)

Strongly Disagree



0 (0 %)

Question 5

I find most materials placed on the course website (D2L) helpful

Strongly Agree



17 (56.67 %)

Agree



11 (36.67 %)

No Opinion



2 (6.67 %)

Disagree



0 (0 %)

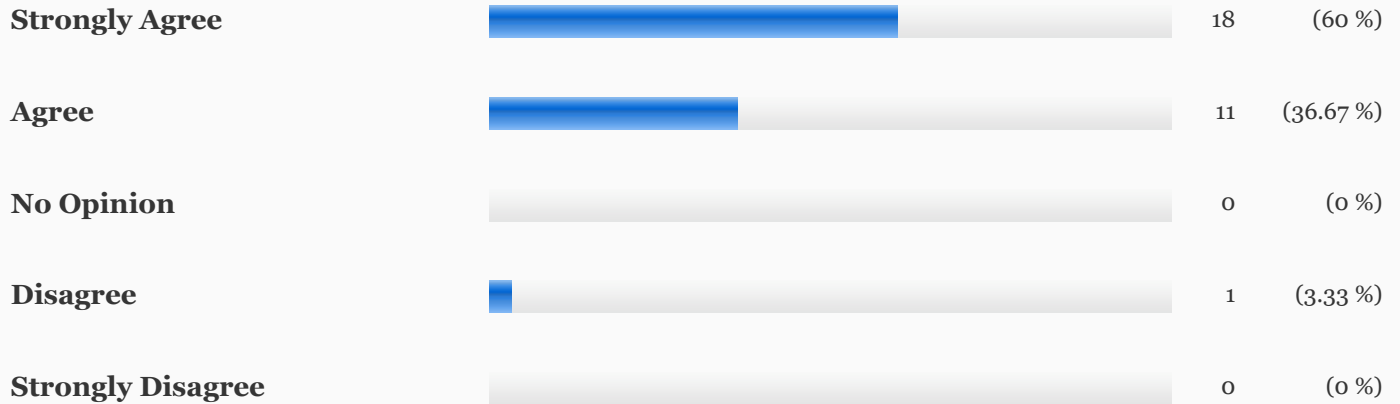
Strongly Disagree



0 (0 %)

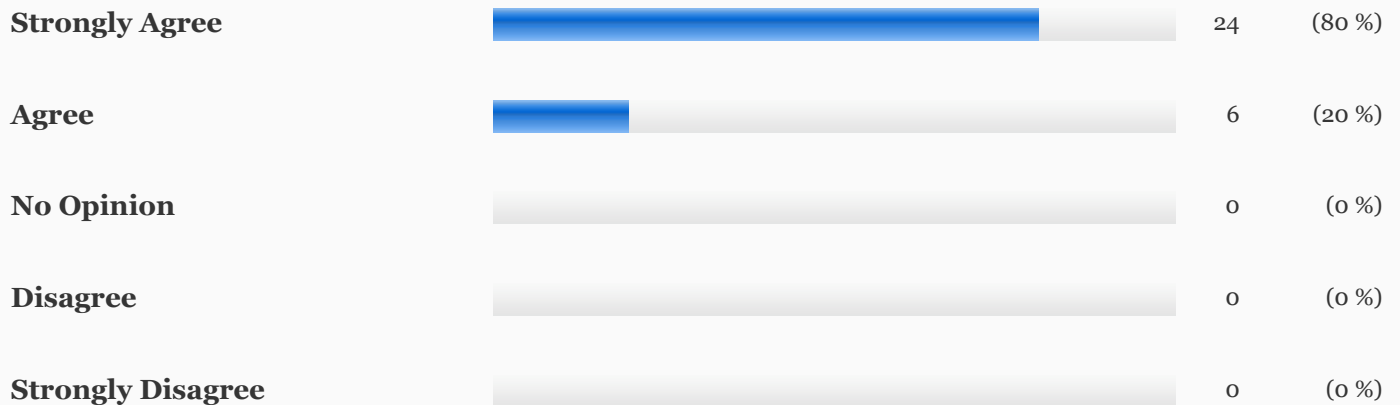
Question 6

I am able to study everywhere due to the availability of the free ebook.



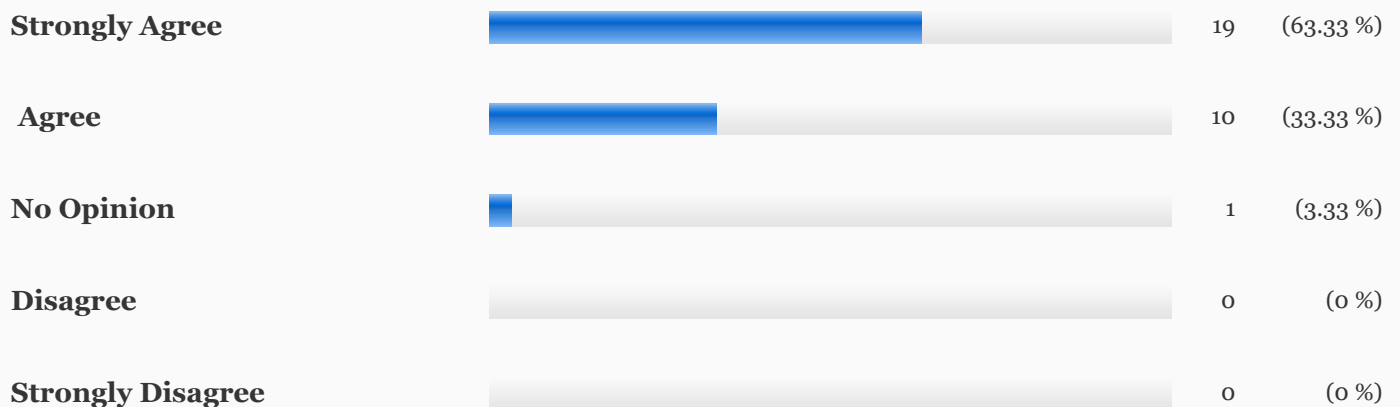
Question 7

I would like to take another no-cost course



Question 8

The content of the free online textbook is very helpful



Question 9

I will recommend this course to other students since it offers free online textbook and other learning materials

Strongly Agree



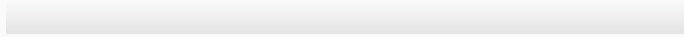
21 (70 %)

Agree



9 (30 %)

No Opinion



0 (0 %)

Disagree



0 (0 %)

Strongly Disagree



0 (0 %)

Question 10

The design of this course helps me improve my grade

Strongly Agree



19 (63.33 %)

Agree



8 (26.67 %)

No Opinion



2 (6.67 %)

Disagree



1 (3.33 %)

Strongly Disagree



0 (0 %)

Close



DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

August 2, 2016

Memo

To: Albany State University Academic Deans, Dr. Joyce Johnson, Dr. Alicia Jackson, Dr. Thomas Thompson, and Dr. Marilyn Spearman
Cc: Albany State University Academic Chairpersons, Dr. Amaechi Nwokoro, Dr. Rhonda Porter, Dr. Charles Ochie, Dr. Deborah Bemby, and Dr. Devi Akella
Cc: Dr. Seyed Roosta, Chairperson, Department of Mathematics and Computer Science
Cc: Dr. Anilkumar Devarapu, Associate Professor of Mathematics and Co-PI
Cc: Dr. Louise Wrensford, Associate Provost, ORSP
Cc: Dr. Olufunke Fontenot, Provost and VP for Academic Affairs, Albany State University
Cc: Dr. Arthur Dunning, President, Albany State University
From: Dr. Zephyrinus C. Okonkwo, Professor of Mathematics and PI, ALG Grant-159
Re: **Request to adopt ALG Textbook Transformation Grant-159-Basic Statistics**

In fall 2015, Dr. Anilkumar Devarapu and I wrote and submitted the Affordable Learning Georgia Textbook Transformation Basic Statistics grant proposal to the Board of Regents of the University System of Georgia. The goal of the proposal is to transform the teaching and learning of Basic Statistics and its iterations at Albany State University by developing the course with associated instructional, assessment, and learning materials placed on D2L. We also adopted a free online textbook provided to us by the ALG Textbook project. The product of this grant is ready for adoption. Instructors teaching Statistics (including its other names) at ASU can adopt this course by just doing, "*Copy Course*". Here are some of the benefits of this project:

1. Instructors teaching statistics course can use the quizzes and tests updated, modify the course to suit their students' interests, or even administer the tests online or in-class. Data analysis can be done on TI-84-Plus, Excel, or in R (by using the Open-Source R Studio Server). A database connectively will be made available if requested.
2. This course can be taught fully online.
3. Students will have access to instructional and assessment guides, as well as a free online textbook.
4. Each student taking the course could save about \$200 by not buying another textbook.
5. Every student will access to the textbook and D2L platform.
6. ASU can save the students up to \$30,000 per semester.
7. This could help increase student enrollment in the courses, student retention in the course, and hence student retention at ASU.

We have examined the syllabi of the statistics courses taught at ASU, and we are very confident that the materials developed in this project can be adopted for each of the courses. We are ready to assist all instructors teaching Statistics and who wish to adopt this course by conducting workshops for them.

We are imploring you to let your faculty members consider adopting this course.

Thank you.